APPLIED TROPHOLOGY, VOLUME 11

Applied Trophology, Vol. 11, No. 9 (September 1967)

Environment of a Living Cell; Health and Environment

Contents in in this issue:

- "The Environment of a Living Cell—A Philosophy," by Fred A. Irving,
- "Health and Environment," (book review of *Man Adapting* by Réne Dubos).

The following is a transcription of the September 1967 issue of Dr. Royal Lee's *Applied Trophology* newsletter, originally published by Standard Process Laboratories.

The Environment of a Living Cell—A Philosophy

Fred A. Irving
Maldon, England

In ordinary subjective research we are limited in the results which we can obtain both by the efficiency of our implements and the need to express ourselves in comparative terms of the things we know. In our subjective world all things are comparative, e.g., to our touch, sight, smell or hearing, and it is upon the final mental image which we build from these various sources that we depend for our assessment of the real truth upon any matter. A philosophical approach is without some of these limitations (and the proof lies more in logic), and an attempt has been made to create a mental image of the environment of a living cell using scientific knowledge as a guide, bearing in mind that nature repeats itself upon larger and smaller scales.

From research, the atomic structure of a cell is exceedingly complex, and it is immensely difficult to represent its multidimensional, multi-atomic structure either as a drawing or as a model.

We have also to consider this cell in its environment amongst other cells and in relation to the body fluids, food, and oxygen. To take a cell out of its living environment in the body is to deprive it of its most important property, namely that it is part of a living organism, and thus to study such a cell taken from the body in terms of chemistry, physics, and biology is not representative of the true state of a living cell in nature.

Furthermore, whilst the analyses of the cell taken from the body, in terms of DNA, ATP, and the like, is a great achievement of detail, the use of all these terms of detail may confuse the issue when one is seeking the principle.

Oparin[1] suggests that "life is a special and very complicated form of the Motion of Matter," and it seems that one of the special things about this motion of matter is its "self-purposiveness," that is, the motion of the matter is so directed for its own purpose as to maintain and renew its own existence.

No part of the human body is possessed of this "self-purposiveness" by itself, and if a part is taken away, then the self-purposive capacity of the remainder is thereby proportionately diminished, until we reach the point of death or cessation of self-purposive motion.

Therefore, a human living cell cannot live and exist fully in its own right in its own environment save as part of the whole, and in view of this it must be doubtful if it is correct to think of the components of a living cell as molecules which by definition can exist by themselves.

It is outside my present discussion, but if we carry consideration of the molecular theory further, we may reach a position where we consider whether the whole body is a giant molecule bound together by a field of force of "self-purposiveness," rather like a radioactive isotope and indeed with a "half-life." It is of interest that such a hypothesis would meet both materialistic and religious views.

Let us think now of a normal cell in terms of atomic structure—magnify it in our imagination so that we can see each atomic nucleus, and then we should find ourselves looking (as it were) at an entire universe with atomic nuclei of different sizes, each moving quickly or slowly along its allotted orbit, held apart by fields of force of repulsion and together by fields of force of attraction, all in equilibrium: pervaded to varying degree by the entire spectrum of radiation and fields of force arising both within and without the cell and body. A further similarity to the universe is that if we could look long enough, it would be receding.

By definition we have said that this living cell is part of its environment, and so we must imagine it not as separated from its environment by its physical boundary but joined in atomic form to its immediate environment, which consists of living sister cells and the bloodstream in the broadest sense. But since we have so greatly magnified the normal cell which we are studying, so must we also magnify the adjacent cells and the bloodstream, and which latter then becomes the movement through space of the various atomic groups of matter that not only flow along the "bloodstream" but through the cell structure at varying rates, according to the extent which we may regard them as forming the living cell structure (or framework) or providing the active dynamic force for living, between which bounds there must be an infinite variation.

For the present purpose we must consider how these movements of matter are related to our practical physical concepts. One can see for example that the direction and quality of the internal movement of the matter of the cell could be changed by the alteration of the potential of the fields of force within the cell, and it seems that this power of change demands of the living cell the production of the necessary fields of force.

One can see that for this to be brought about, the following are required:

> (a) Heat radiation energy to raise the "temperature" to the optimum of 98.4°F (but no more) for maximum efficiency. This heat radiation energy is a form of stimulation of the rate of the motion of matter within the cell to enable it to perform its function and not a primary form of energy as in a heat engine. This heat radiation energy is provided *(1)* from outside the body; *(2)* from within the body, from the so-called "friction forces" when work is performed; and *(3)* from the oxidation of combustible matter within the body in so far as the heat energy radiation requirements have not been met from the other sources. The oxidation of combustible matter would not appear to be limited to the cell itself.
>
> (b) There must be a sufficient supply of the correct atomic groups of matter (i.e., nutrition) flowing to and through the cell structure to maintain it in equilibrium with its environment at the optimum level. (The need for "vital substances" in the correct amounts.)
>
> (c) There must be a sufficient supply of oxygen to the cell because:
>
>> (1) It lives in an environment of ample oxygen, and the stability of matter in our present earthly state depends upon it being in a fully oxidized equilibrium with its environment.
>>
>> (2) As oxygen is not used as a source to provide heat radiation energy by chemical reaction any further than necessary to maintain the optimum temperature, it appears that it must be the movement of oxygen through the cell (e.g., like an electric induction machine) which provides the fields of force for the motivation of the self-purposive quality of life. Any interruption of the supply and movement of oxygen through the cell results quickly in the cessation of self-purposive motion, however many so-called energy calories may be present. At this point the body may be complete with "self-purposiveness," but without the further ability to continue its special form of the motion of matter, and this may be a marginal difference between life and death. (That oxygen is used up oxidizing matter in the body is not surprising since it is such an active element, but this does not prove that it is necessary to load up the body with "calories" per se to produce energy for motivation, and it is only partly coincidental that there is a ratio between food and computed calorie values.)
>>
>> (3) Where there is an insufficient supply of oxygen, or where it is all absorbed as it flows at its differential rate through the cell space (compare with a river polluted by organic waste which absorbs the oxygen not immediately but for several miles, or days, after the point of pollution), there is a danger that within the cell there may be parts with unsaturated ends in the atomic chain structure, which may then be free to attachment by alien protein particles. For example, where materials are taken into the body that overload the digestive system and individually or in association have a high biochemical oxygen demand as distinct from computed caloric value.

By the resolutions of the International Vital Substance Society adopted at Freudenstadt and Konstanz it is important not to depress the oxygen availability to the cell, and it is suggested that the total effective biochemical oxygen demand of the diet should not exceed the body's natural power of replenishment, just as the digestive system also should not be so overloaded as to break down this natural nonspecific barrier to unwanted matter.

Summary: The Environment of a Living Cell—A Philosophy

In subjective research we are restricted by the practical limits of our equipment and the need to express ourselves in comparative terms in order to build up our mental image. A philosophical approach is without these limitations, and an attempt has been made to create a mental image of the environment of a living cell using scientific knowledge as a guide. Commencing with a definition of "life" is suggested.

> (a) Life is indivisible, in that to take a living cell from its environment deprives it of its essential "self-purposiveness," which it had as part of the whole. It is doubtful therefore that a cell should be regarded as "molecular," though the byproducts of analysis may be molecular.
>
> (b) The source of energy in the cell is the creation of fields of force by the transposition of oxygen, and it is wrong to regard the body as a heat engine.
>
> (c) The cell works in an equilibrium of ample oxygen, and diminution of this must leave parts of the cell with unsaturated ends in its atomic chain structure, which may then be free to attachment by alien protein particles, e.g., where materials are taken into the body that overload the digestive system, or individually (or in association) have a high biochemical oxygen demand as distinct from caloric value.
>
> (d) The total effective B.O.D. of food should not exceed the body's natural power of oxygen replenishment, as this may bring about nonspecific predisposing cancerous conditions within the cell due to intermittent local oxygen deficiency.

—*International Journal,* December 1966

Reference

1. Oparin, A.I. (1963). *Life, Its Nature, Origin and Development.* Chapter V., p. 201. London and Edinburgh: Oliver & Boyd.

Health and Environment

Book review: *Man Adapting*, Réne Dubos, Yale University Press, 72s. (527 pp.)

Réne Dubos is a famous microbiologist with a passionate interest in the cause of diseases: he perceives that man's adaptation to the environment is largely controlled by his health. The threat or invasion of disease forms a framework within which man is confined in his maneuvers. The grandest of individual and social ambitions may flounder because they encourage an invisible microbe to a population explosion. Prof. Dubos warns us that we cannot wait until we know everything about nature before we impose restraints on many of our present activities.

In one remarkable passage he says that Rachel Carson and Lewis Herber may have ended their indictment of environmental pollution on a rather too hopeful note:

> "They seem to believe that ways can be found to retain the advantages derived from the use of chemicals and other technological innovations, and yet to limit and control their use so effectively that all dangers can be avoided. In my opinion this Panglossian attitude is like whistling in the dark. On the one hand, it would be just as difficult to decrease significantly the use of chemicals as it would to cut down on the number of automobiles. On the other hand, it is as impossible to predict at present the delayed toxic effects of most technological innovations as it was half a century ago to predict that exposure to small doses of radiation would cause cancer twenty years later."

Future generations will have to decide whether they think the benefits of our kind of civilization outweigh the road deaths and the degenerative diseases. What we shirk facing is the fact that the positive and the negative aspects are inseparable. We cannot gain for ourselves all the advantages and eliminate all the disadvantages simply by intensifying scientific research. Réne Dubos first made this point in his great book *The Mirage of Health,* where he showed that all civilizations have been involved in this dilemma in some form or other. He reminds us that we cannot escape choosing our destiny however much science we have at our disposal. It is unusual for even the greatest scientists to acknowledge this: it lifts *Man Adapting* to a higher level of insight to other books of this kind. Prof. Dubos does not make the choice for us, but he sets out the conditions of choice.

Prof. Dubos points out, for example, that the diet of primitive people, though it appears monotonous and limited, was usually well balanced because it included many things—such as grubs, ant eggs, birds' nests, and small game—not included in the nutrition books. Deficiency diseases have resulted from white settlers reducing the quantity of these little valued items of diet and compelling the natives to eat one or two crops.

The daily protein intake necessary to prevent disease declines from 1.6 gm per kg body weight at birth to 0.35 at 21 years of age. The infant's requirements are provided by breastfeeding, which among primitive peoples often lasted two years. When this time is cut down, newly weaned infants suffer at once from malnutrition in protein deficient areas. Over-nutrition in richer countries brings about maximum growth rate in the young, but there is now experimental evidence that this is unfavorable to longevity and indeed to the general maintenance of health. As a last word of wisdom, Prof. Dubos tells us that drastic changes usually upset health.

A year's ration of reading and cheap at the price.

—Robert Waller. Reviewed in *Journal of the Soil Association*, Vol. 14, January 1967.

This entry was posted in Applied Trophology, Volume 11. Bookmark the permalink.

‹ Applied Trophology, Vol. 11, No. 8 (August 1967)

Applied Trophology, Vol. 11, No. 10 (October 1967) ›

Leave a Reply

You must be logged in to post a comment.

Connect with:

Secured by OneAll Social Login

HISTORICAL ARCHIVE SEARCH

Search For...

GO!!

YOUR CART

FEATURED ARCHIVE SUBJECTS

Lee Foundation for Nutritional Research
acid-alkaline balance
digestive health
heart disease
low-carb diet
prenatal nutrition
processed foods and disease
raw foods
soil health and nutrition

RECENT POSTS

Good to Know: Understanding Standard Process Combination Products
22 hours ago

Happy Thanksgiving from SRP!
1 week ago

Dr. Dority on the 33 Royal Principles of Health: #29. Interference with Transmission of Innate Forces
2 weeks ago

Why Phyllis Quinn's Slow Cook Gourmet Is an SRP Fave
3 weeks ago

Dr. Dority on the 33 Royal Principles of Health: #28. The Conductors of Innate Forces
4 weeks ago

Easy Liver Paté for All (with GAPS Stages)!
1 month ago

CONTACT US

+1 (866) 407-9323
+1 (970) 461-4602
5740 Boeing Drive, Loveland, CO, 80538
P.O. Box 270091, Fort Collins, CO, 80527
info@seleneriverpress.com
Guest Blog Post Submission Form

PRODUCT SEARCH

Search for...

GO!

YOUR CART

Good to Know: Understanding Standard Process Combination Products
22 hours ago

Happy Thanksgiving from SRP!
1 week ago

Dr. Dority on the 33 Royal Principles of Health: #29. Interference with Transmission of Innate Forces
2 weeks ago

Why Phyllis Quinn's Slow Cook Gourmet Is an SRP Fave
3 weeks ago

Search Historical Archives...

SEARCH

FEATURED ARCHIVE SUBJECTS

Lee Foundation for Nutritional Research
acid-alkaline balance
digestive health
heart disease
low-carb diet
prenatal nutrition
processed foods and disease
raw foods
soil health and nutrition

ABOUT SELENE RIVER PRESS

Selene River Press is a publishing company specializing in holistic nutrition education. Our philosophy is rooted in the work of Dr. Royal Lee, who showed that vitamin deficiencies, due to processed foods, are responsible for most degenerative disease. From organic farming to food-based vitamins, from raw milk to fermented foods, Dr. Lee set the course for the field of whole food nutrition.

CONTACT US

Toll Free: +1 (866) 407-9323
Local: +1 (970) 461-4602
PO Box 270091, Fort Collins, CO, 80527
info@seleneriverpress.com
Guest Blog Post Submission Form

VISA MasterCard AMERICAN EXPRESS DISCOVER PayPal